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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/069,137	02/22/2002	Takeshi Takezawa	112007	1665

7590 03/20/2003

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EXAMINER
KOVAL, MELISSA J

ART UNIT	PAPER NUMBER
2851	

DATE MAILED: 03/20/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/069,137	TAKEZAWA ET AL.	
	Examiner	Art Unit	
	Melissa J Koval	2851	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____ .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-17* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-8,12-15 and 17* is/are rejected.

7)☒ Claim(s) *9-11 and 16* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *22 February 2002* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) *3* .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Specification

Applicant is reminded of the proper content of an abstract of the disclosure.

A patent abstract is a concise statement of the technical disclosure of the patent and should include that which is new in the art to which the invention pertains. If the patent is of a basic nature, the entire technical disclosure may be new in the art, and the abstract should be directed to the entire disclosure. If the patent is in the nature of an improvement in an old apparatus, process, product, or composition, the abstract should include the technical disclosure of the improvement. In certain patents, particularly those for compounds and compositions, wherein the process for making and/or the use thereof are not obvious, the abstract should set forth a process for making and/or use thereof. If the new technical disclosure involves modifications or alternatives, the abstract should mention by way of example the preferred modification or alternative.

The abstract should not refer to purported merits or speculative applications of the invention and should not compare the invention with the prior art.

Where applicable, the abstract should include the following:
(1) if a machine or apparatus, its organization and operation;
(2) if an article, its method of making;
(3) if a chemical compound, its identity and use;
(4) if a mixture, its ingredients;
(5) if a process, the steps.

Extensive mechanical and design details of apparatus should not be given.

Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

The abstract of the disclosure is objected to because it exceeds 150 words. Correction is required. See MPEP § 608.01(b).

The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

The following title is suggested: -- Projector Comprising An Optical Component Having a Rock Crystal Member --.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-8, 12-15 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mitsutake et al. ('367), Figure 12 in view of Figure 2.

Refer to Figures 2 and 12 of Mitsutake et al. ('367), for example.

Claim 1 sets forth: "A projector comprising:

an illumination optical system for emitting a light (light source 71, reflecting mirror 72, heat cut filter 73 and a first condenser lens 74);

an electro-optical device (any of liquid crystal light bulbs 76_R, 76_G, or 76_B) for modulating the light emitted from the illumination optical system in response to image information;

a projection optical system for projecting a modulated light generated by the electro-optical device (projection lens 78); and

an optical component (any of polarizing conversion units 40_R, 40_G, or 40_B) having a rock crystal member composed of rock crystal, the optical component being located in an optical path including the illumination optical system and the projection optical system."

Refer to Figure 2, wherein unit 20 of the plate-like polarizing element is shown. Unit 20 further comprises wavelength plates 23_1 and 23_2 that can be formed of a crystalline material such as rock crystal. Refer to column 5, lines 21 through 67, wherein Mitsutake et al. ('367) suggests that the unit 20 may be modified a number of ways.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to design polarizing conversion units 40_R, 40_G, or 40_B in view of the teachings disclosed by Mitsutake et al. ('367) with respect to figure 2 and unit 20 shown therein, such that polarizing conversion units 40_R, 40_G, or 40_B will include materials such as rock crystal. The motivation for one having ordinary skill in the art to make such a design choice would be to select a desired index of refraction for illumination light passing through the rock crystal member and for predetermining thickness and orientation of the molecular axes of the optical component comprising the rock crystal member.

With respect to claims 2 through 7, the orientation of the axes of the rock crystal member with respect to the other optical components comprising the device and to the center axis of illumination light is again a matter of design choice as already discussed with respect to rejected claim 1 above.

With respect to claim 8, again refer to figure 2.

With respect to claims 12 and 17, refer again to the arguments applied to claim 1. Also refer to figure 12 of Mitsutake et al. ('367). Therein a color separation system, comprising dichroic mirrors 81, 82 and reflecting mirror 83 as well as color combination system comprising dichroic mirrors 84, 86 and reflective mirror 85, is shown.

With respect to claims 13 through 15, the orientation of the axes of the rock crystal member with respect to the other optical components comprising the device and to the center axis of illumination light is again a matter of design choice as already discussed with respect to rejected claims 1 and 12 above.

Allowable Subject Matter

Claims 9-11 and 16 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter: The prior art neither shows nor suggests a projection device comprising a rock crystal lens optically connected to elements comprising a projection optical system as described in claim 1. Nor does the prior art show or suggest the structural details of

claims 10, 11 and 16 as directed to the division of incident light into two different polarized lights, strata comprising the rock crystal members, or an X-shaped interface between rock crystal members.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Mitsutake et al. U.S. Patent 6,229,646 B1 teaches a plate-like polarizing element, a polarizing conversion unit provided with the element, and a projector provided with the unit.

Oishi U.S. Patent 5,359,455 teaches a polarization forming optical device.

Koide U.S. Patent 6,529,228 B1 teaches a laser working method, method for producing ink jet recording utilizing the same, and ink jet recording method produced by such method.

Sugawara U.S. Patent 6,414,791 B1 teaches an optical system for photographing a stereoscopic image, zoom lens and image pickup optical system.

Yanagawa et al. U.S. 6,327,237 B2 teaches an optical pickup for recording or reproducing system.

Iimura et al. U.S. Patent 5,056,896 teaches a liquid crystal display device with dielectric anisotropy.

Itoh et al. U.S. Patent 5,206,752 teaches an optical rotator formed of a twisted nematic liquid crystal polyester including an ortho-substituted aromatic unit.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Melissa J Koval whose telephone number is (703) 308-4801. The examiner can normally be reached on Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Russell Adams can be reached on Monday through Thursday at (703) 308-2847. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 305-3431 for regular communications and (703) 308-7382 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

MJK
March 16, 2003

RUSSELL ADAMS
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2800